NEW AND INTERESTING SCOTTISH FUNGI: I

D. M. HENDERSON

Although the woodlands of the Scottish Highlands have been classic hunting grounds of several generations of agaricologists, the mountains have been little explored. This may in part have been due to failure to realize the fungal richness of the mountain tops, also perhaps to the feeling that there was still plenty to explore at lower levels. The same has been true to a lesser extent abroad. Blytt (1905) wrote of many northern Scandinavian species and Rostrup gave some account of Greenland and Faeroese Fungi. With Favre's work on the Jura and the Swiss National Park, Möller's account of Fungi of the Faroes and Lange's description of Greenland agarics interest is returning to these montane habitats.

The following account deals with five interesting agarics collected within the last five years. Four are recorded in Scotland for the first time. Due to their perishable nature and the exposed conditions on open hillsides, fructifications are often too imperfect for complete identification. From many collections of this sort it is clear that a few score of larger fungi could be added to the Scottish flora by intensive collecting in these habitats.

In the past, records have been published with insufficient descriptions and without voucher specimens being preserved. For this reason I have added descriptions of all the species. Specimens are deposited in the Herbarium, Royal Botanic Garden, Edinburgh.

Cortinarius (Myxacium) favrei Henderson **nom. & sp. nov.** (Fig. 1).

Myxacium favrei Moser in Kleine Kryptogamen flora von Mitteleurope, IIb, Ed. 2, 195, 1955 (nomen nudum).

Cortinarius alpinus Boud. *sensu* Favre in Ergebnisse der wissenschaftlichen untersuchungen der schweischerischen Nationalparks, v, 125, 1955.

Pileus usque ad 35 mm. latus, conico-obtusus deinde convexus, udus, copiose glutinosus, margine subtiliter striato, primum, ochraceo-fulvescens deinde, pallido-ochraceus. Caro pallido-cinerea. Lamellae violaceo-fuscae deinde fusco-fulvescentes, confertae, margine fertile. Stipes 45–50 × 6–8 mm., subtus leviter clavatus potius rigidus, copiose glutinosus, albus, basi violaceus tinctus, superne annulo albo cincta. Sporae oblongo-ovatae conspicue verrucosae, 11–15 × 7–8μ.

Typus: Beinn Eighe, Scotia. *D. M. Henderson* 2848.

Pileus 25–35 mm. conico-obtuse at first, then convex, very glutinous in moist weather, slightly striate, ochraceous tawny soon paling to ochraceous. Flesh pale grey-buff. Gills adnate, broad, crowded, grey-brown flushed violaceous then rusty brown, margin fertile.

Stem 45–50 × 6–8 mm., slightly clavate below, solid, rather rigid, glutinous throughout, whitish, flushed violaceous at base, with a distinct glutinous appressed white cortinate zone in upper half. Smell none. Taste not

distinctive. Basidia four-spored. Spores oblong-ovate with distinct warts, ochraceous, 11–15 (12–13) × 7–8μ.

Beinn Eighe Nature Reserve, West Ross, in dwarf shrub community of *Juniperus nanus*, *Arctostaphylos uva-ursi* and *Trichophorum caespitosum* between 1000 and 1250 ft. three collections DMH. 2360 and 2361, 27 ix 55, and DMH. 2848, 20 ix 56.

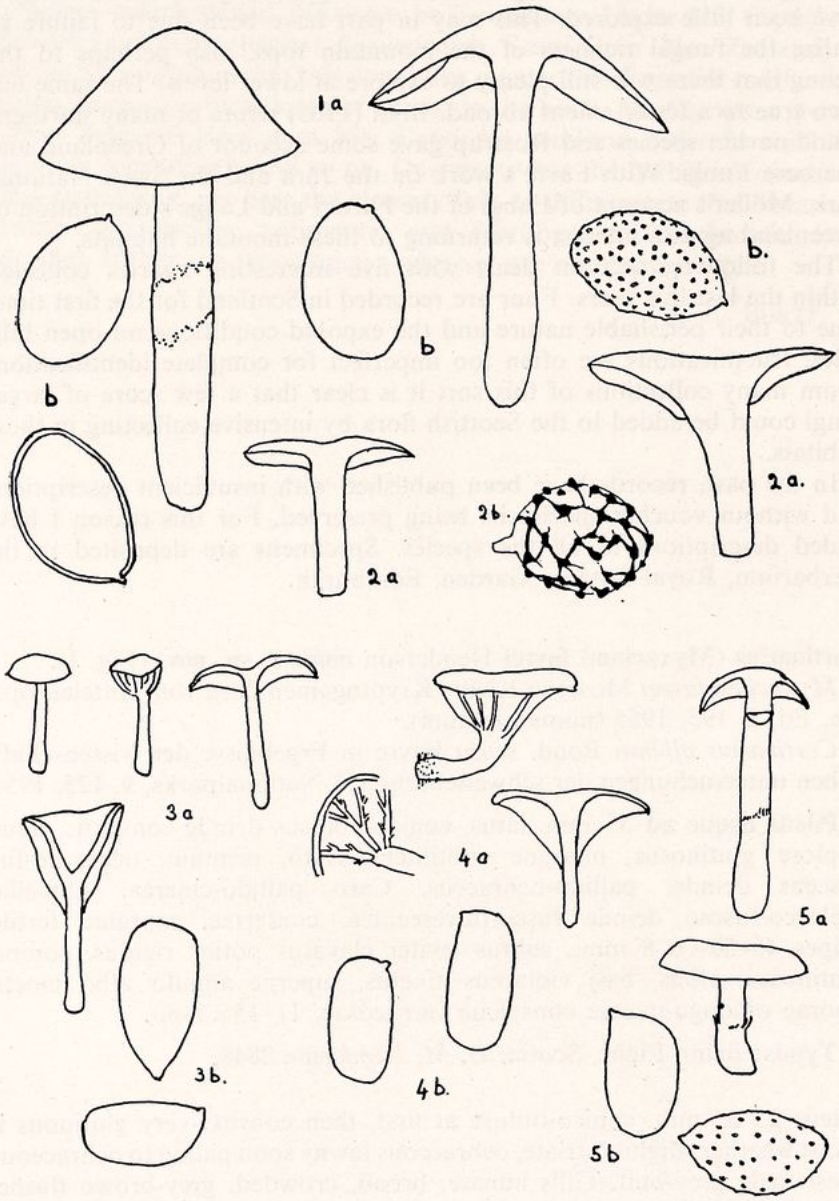

FIG. 1. 1a. *Cortinarius favrei* (DMH. 2848) × 1. 1b. Spores × 1800. 2a. *Russula alpina*, × 1. 2b. Spore × 2600. 3a. *Omphalina luteolilacina*, ×1. 3b. Spores × 1800. 4a. *Omphalina luteovitellina*, × 1. 4b. Spores × 1800. 5a. *Cortinarius pertristis* × 1. 5b. Spores × 1800.

This species has had a somewhat chequered career through confusion with Boudier's *Cortinarius alpinus*, but both appear to occur in the Alps, Favre assigned his collections to *C. alpinus* although noting that they differed markedly in spore characters from Boudier's description. Unfortunately, Favre could not trace Boudier's collections to check the spores. However, both Henry (1950), Moser (1955) and Kühner & Romagnesi (1953) recognise the two as distinct, Moser unfortunately did not validate his name with a latin description.

Russula alpina (Blytt) Möll. et Schaeff. in Ann. Mycol. xxxviii, 333, 1940. Ben Lawers, Perthshire, above Lochan na Chait, in *Deschampsia* turf with *Juncus* sp. and *Alchemilla alpina*, 5 vii 56, DMH. s.n.; Ben Lawers, 3800 ft., on exposed peat with *Salix herbacea*, 1 ix 57, DMH. 3507. Beinn Eighe Nature Reserve, West Ross, 3200 ft. in species rich lichen heath with *Salix herbacea*, 24 ix 56, DMH. 2339. Braeriach, Aviemore, with *Salix herbacea* and *Rhacomitrium lanuginosum*, 3800 ft., 12 ix 57, DMH. 3673. (Fig. 2.).

Pileus, 2·5–3 cm. in diameter, incurved, then plane or slightly depressed in centre, delicately striate at margin, smooth and slightly viscid when moist, polished when dry, cuticle separable half-way to disc, scarlet tinged with blood red at first or dull purplish-red tinged pink immediately under the cuticle, flesh rather thin, white. Gills white then pale cream, adnate, rather thick, margin entire. Stem 25 by 5 mm. solid, faintly reticulated on surface, white becoming grey on ageing. Basidia four-spored. Cystidia none. Smell not distinctive. Taste mild at first then hot but soon fading. Spore deposit white. Spores ovate or almost globose, echinulate with fine reticulation, 6–7 × 6–6·5μ.

There seems to be general agreement that *Russula emetica* var. *alpina* originally described by Blytt (1905) from the Scandinavian mountains is the same as *Russula emetica* var. *alpestris* described by Boudier from Switzerland. Favre (1955) states that it is widespread on acid rocks in the Swiss National Park, and it has recently been described from the Faeroes by Möller (1945), and from W. Greenland by Lange (1957). Thus its occurrence at high levels in the Scottish highlands is hardly surprising.

This species is on first sight reminiscent of *Russula emetica*. However, from that species it differs in the darker purplish colour, its rather dwarfed stature and in the evanescent acridity on tasting. This last character has been clearly noted by both Favre and Möller.

Omphalina luteolilacina (Favre) **comb. nov.**

Basionym; *Omphalia luteolilacina* Favre in Ergebnisse den wissenschaftlichen untersuchungen der schweizerischen Nationalparks, v, 45, 1955. Ben Lawers, Perthshire, 2800 ft., on peaty banks with *Alchemilla alpina*, 1 ix 57, DMH. 3501. Braeriach, Cairngorms, Inverness-shire, on peat with *Alchemilla alpina*, 3000 ft. 12 ix 57, DMH. 2586. (Fig. 3.).

Pileus 10–15 mm. convex, centre depressed, becoming infundibuliform, surface matt, minutely pubescent when young, cuticular hyphae 7–9μ in diameter, hairs on pileus 40–50 × 7–8μ, margin crenulate at first, then one third striate, pale cream to cream tinged apricot, then white, flesh

white. Stipe 10–15×1–3 mm. occasionally slightly tapered below, white tinged violaceous, especially at base, minutely pubescent throughout, hairs cylindrical, occasionally one-septate at base, 50–60×7–8μ. Gills adnato-decurrent, rather thick, lamellae 8–10, lamellules 3, pale cream. Basidia 4-spored. Spores non-amyloid, oblong, smooth, 7–8×4–4·5μ. Cystidia absent.

This species was described by Favre from alpine meadows at about 7000 feet in the Swiss National Parks. It is perhaps closest to *Omphalina ericetorum* but differs markedly in colour and in the clearly pubescent stipe, which in the latter is usually only minutely pruinose.

Lange (1957) has included *Omphalina luteolilacina* Favre in his synonomy for *Hygrophorus violaceus* (Laest.) Lange in his recent work on the Greenland Flora. In this he is surely incorrect for Laestadius' *Ag. violaceus* has often a light violet cap according to the original description. It seems probable that they are two distinct species. The first, *O. luteolilacina*, including my collections and Favre's original description and plate, resembles *Omphalina ericetorum* with a pruinose dry stem and dry cap. The second, *Hygrophorus violaceus*, has a gelatinous cap cuticle and viscid violaceous stem and may have a violaceous cap. This is Lange's species, and I have collected only one specimen which may be referable here—a single rather poor specimen on bare peat on the Cairngorms in September, 1957.

Cortinarius (Hydrocybe) pertristis Favre in Ergebnisse der wissenschaftlichen untersuchungen der schweizerischen Nationalparks, v, 142, 1955. Ben Lawers, Perthshire, 3800 ft., on bare summit peat associated with *Salix herbacea*, 1 ix 57, DMH. 3509. (Fig. 5.).

Pileus 15–20 mm. hemispheric then convex finally almost plane, surface fibrillose, cells of cap cuticle clamped, 6μ in diameter, encrusted with amorphous brown matter, hygrophanous, dull chocolate brown, slightly squamulose, flesh dull ochraceous-brown. Gills adnate rather distant, lamellae 26, lamellules 1, dull chocolate brown, margin entire, cystidia absent. Cortina on stem brown. Stem 10–20×3–4 mm. slightly expanded below, often hollow, fibrillose, usually with a well marked fibrillose ring-zone below the middle or even sub-basal, dull ochraceous brown. Smell none. Basidia 4-spored, spores elliptic, 8–9×5–5·5μ.

From Favre's description and illustrations (Favre 1955, pl. x, fig. 9) there seems no doubt that the Lawers agaric belongs to his species. The only other which it closely resembles is *C. gausapatus* Favre, also associated with *Salix* spp., but the spores of the latter are considerably smaller, 7–8×4–5μ. The most notable feature is the dingy chocolate colour of all parts, especially the gills.

Omphalina luteovitellina (Pilat & Nannfeldt) M. Lange in Friesia, v, 22, 1954.

Agaricus (*Omphalia*) *umbelliferus* var. *flavus* Cooke in Cooke, Illus. Brit. Fungi, Pl. 271 (nomen nudum).

Creag an Lochan, Lawers, Perthshire, 1500 ft., on peaty banks with *Salix arbuscula*, DMH. 1512. Ben Lawers, Perthshire, 3000 ft., 27 v 56, DMH. 2768; *ibid.* 2700 ft. on peaty banks, 2 vii 56, DMH. 2767. Braeriach, Inverness-shire, 14 ix 57, DMH. 3601. Beinn Eighe, W. Ross, 1400 ft.,

on wet peat, 21 ix 56, DMH. 2851. Caenlochan, Angus, 3000 ft. on bare peat with *Salix herbacea*, 8 vii 53, DMH. 770. Ben Heasgarnich, Perthshire on peaty soil, 3000 ft., 16 vi 56, DMH. 2779. White Coomb, Moffat, 2200 ft., 25 vii 57, DMH. s.n. (Fig. 4.).

Pileus convex becoming plane with incurved often crenulate margin, smooth, deep chrome. Flesh chrome rather thick. Stem 5–15 x 1–2·5 mm., even, stuffed, concolorous with pileus, usually minutely pruinose at least in lower half, hairs cylindrical mostly ca. $44 \times 6\mu$, occasionally 1-septate. Gills usually strongly decurrent, thick and rather fleshy, with several subsidiary branches and cross veins, gills in some specimens thick and narrow almost cantharelloid in appearance, concolorous with pileus. Spores white, non amyloid, oblong-elliptic, smooth, with prominent apiculus, $6–8 \times 2·5\mu$. Basidia 4-spored. Cystidia absent. Smell not distinctive.

This species occurs frequently on mountains usually above 2500 ft., but has been collected as low as 1300 ft. in Breadalbane. It seems to favour peat covered with an algal scum as a substrate. It is interesting that Stevenson in British Fungi (1886) notes, "I have gathered . . . the golden yellow variety only at the higher altitudes up to 3500 ft."

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